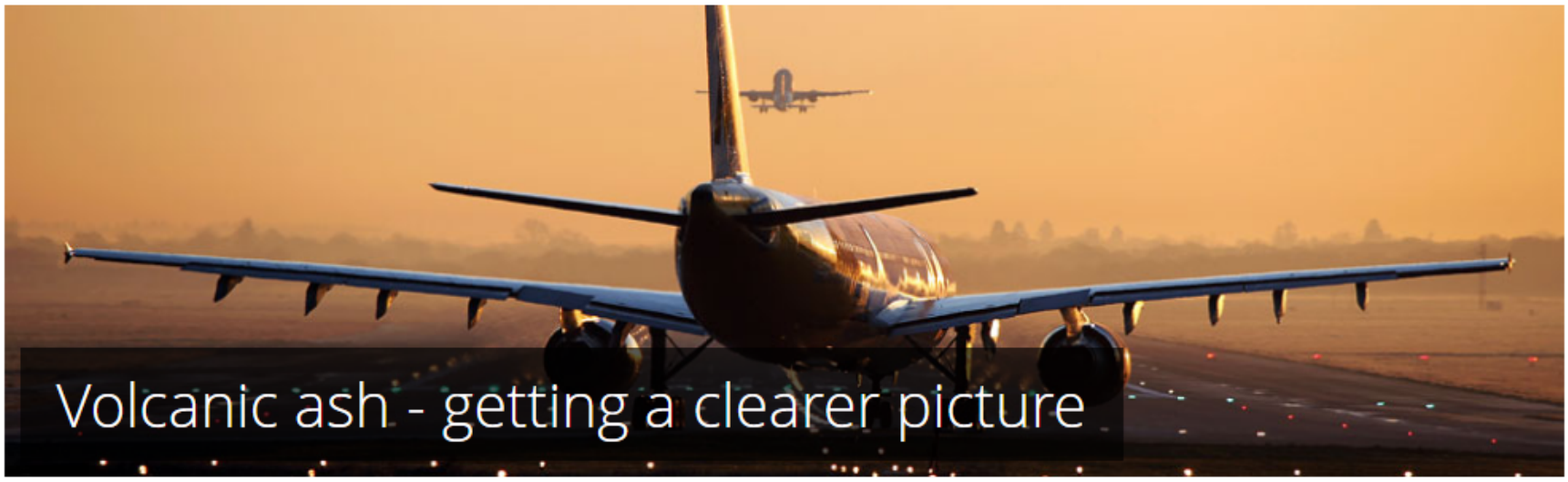

Volcanic ash - getting a clearer picture

19 November 2014 - ZEUS, a device developed by the Met Office and the Natural Environment Research Council (NERC) to improve our understanding of atmospheric volcanic ash distribution, has been fitted to a British Airways 747 aircraft.

Following the Icelandic volcanic eruption in 2010, which caused widespread flight disruption, scientists at the Met Office and NERC developed a prototype device capable of detecting small amounts of ash in the atmosphere. In time, this research could aid ash forecasting and also help airlines more accurately plan their flight and engineering operations.

The ZEUS prototype uses measurements of static electricity to detect small levels of atmospheric volcanic ash and can distinguish between the levels of electrostatic charge on the aircraft when flying in normal conditions and when volcanic ash is present. It has been fitted on a British Airways 747 and data has already been successfully downloaded from its first flight to Johannesburg and it will continue to fly on long-haul routes around the world for a year, collecting data for analysis.

When information from ZEUS is downloaded and correlated with flight data - including weather conditions, speed, altitude and location - it's hoped it will help scientists build a picture of volcanic ash distribution. Aircraft engineers could also use this data to schedule post-flight inspections of engines and aircraft systems.

Ian Lisk, Met Office Head of Natural Hazards, said: "This is a very exciting development and a great result of cross-industry collaboration, including British Airways, FlyBe, NERC and the Met Office. While further development is still required, we are delighted with progress with this prototype volcanic ash sensor to date and the findings we have so far received from the tests are very promising."

Captain Dean Plumb from British Airways said: "We were very keen to be involved in this pioneering research. Aircraft regularly encounter small quantities of ash in flights around the world, perfectly safely, and pilots use expert forecasts to avoid more dense ash clouds. ZEUS has the potential to provide a clearer picture of ash distribution and could be used to inform decision making-processes in the event of future volcanic eruptions."

The Met Office is an expert in aviation forecasting, with responsibility for providing international aviation meteorological services and advice. The London Volcanic Ash Advisory Centre (VAAC), one of nine VAACs worldwide, is hosted and run by the Met Office as part of its aviation forecast operations. London VAAC provides advice on the likely dispersion of ash clouds emitted from eruptions originating in Iceland and the North East Atlantic, and this information is used by the aviation industry to help make decisions on airspace management.

"The National Centre for Atmospheric Science (NCAS) is the centre where NERC carries out much of its research in atmospheric science and technology. NCAS frequently works in partnership with the Met Office to help in the development of atmospheric models and observation techniques, including methods for detecting volcanic ash."

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